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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,076	01/10/2006	**Rudolf Bohdal**	5038.1019	6000

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EXAMINER	
YOUNGER, SEAN JERRARD	
ART UNIT	**PAPER NUMBER**
3745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,076	BOHDAL, RUDOLF	
	Examiner	Art Unit	
	SEAN J. YOUNGER	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-19,21-29 and 31-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-19,21-29 and 31-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 April 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 17-19, 21-29 and 31-33 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 17-19, 29, 31-33 and 37-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. [U.S. 5,733,498] in view of Irmann [U.S. 2,796,660]. Regarding claims 17 and 33, Kawakami et al. disclose a method for manufacturing vane segments for a gas turbine comprising the steps of providing a plurality of vanes, and manufacturing a vane segment via powder metallurgy. The step of manufacturing includes the steps of mixing a metal powder having a binding agent to form a homogeneous material [column 14, line 65 – column 15, line 3], forming at least one molded body from the homogeneous material via injection molding [column 15, lines 23-25], subjecting the at least one molded body to a debinding process [column 15, lines 52-53], and compressing the at least one molded body via sintering to form the vane segment [column 15, lines 53-54]. Kawakami et al., having a primarily silicon-nitride

powder base, do not disclose that a metal powder accounts for more than 50% of the homogeneous material. Irmann teaches that the vanes of a gas turbine engine [column 6, lines 40-42] can be made using a powder metallurgical process using a homogeneous powder having at least 50% metal (aluminum). It would have been obvious to modify the method of Kawakami et al. by using a homogeneous powder comprised of at least 50% metal, rather than silicon nitride, because the materials were known for use in the powder metallurgy process and could have been implemented by one of ordinary skill with predictable results.

4. Regarding claims 18 and 19, the guide vane segment of Kawakami et al. includes four guide vanes.

5. Regarding claim 29, Kawakami et al. disclose a component for a gas turbine comprising a guide vane segment (11) manufactured from a plurality of guide vanes via powder metallurgy injection molding. Kawakami et al., having a primarily silicon-nitride powder base, do not disclose that a metal powder accounts for more than 50% of the homogeneous material. Irmann teaches that the vanes of a gas turbine engine [column 6, lines 40-42] can be made using a powder metallurgical process using a homogeneous powder having at least 50% metal (aluminum). It would have been obvious to modify the method of Kawakami et al. by using a homogeneous powder comprised of at least 50% metal, rather than silicon nitride, because the materials were known for use in the powder metallurgy process and could have been implemented by one of ordinary skill with predictable results.

6. Regarding claims 31 and 32, the guide vane segment of Kawakami et al. includes four guide vanes connected via an inner cover band (13) and an outer cover band (12).

7. Regarding claims 37-39, the metal powder of Irmann comprises 50-70% of the homogeneous material.

8. Regarding claims 40-42, the vane segments of Kawakami et al., stated as manufactured for use in a gas turbine engine, are capable of use in an aircraft engine.

9. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. [U.S. 5,733,498] in view of Irmann [U.S. 2,796,660] and Sugihara et al. [U.S. 5,554,338]. Kawakami et al., as modified by Irmann in the rejection of claim 17 above, disclose all elements substantially as clamed, but fail to disclose the order of joining and debinding steps. Sugihara et al. teach a method of preparing a composite sintered body, where a molded body for each part is prepared and then the molded bodies are joined together in the green state prior to the debinding and sintering process to form one molded body. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the method of Kawakami et al. to include the ability to form individual elements and join them before debinding and sintering, as taught by Sugihara et al., because the technique for a particular process was within the capabilities of a person of ordinary skill, in view of the teaching of the technique for improvement in similar situations.

10. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. [U.S. 5,733,498] in view of Irmann [U.S. 2,796,660] and Gegel et al. [U.S. 6,551,551]. Kawakami et al., as modified by Irmann in the rejection of claim 17 above, disclose all elements substantially as clamed, but fail to disclose the order of joining and debinding steps. Gegel et al. teach a method of preparing a composite sintered body, where separate molded bodies go through a debinding process before they are joined in a presintered state to form one body [column 6, lines 20-25], and are subsequently subjected to a uniform sintering process. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the method of Kawakami et al. to join the bodies after debinding and before sintering, as taught by Gegel et al., because the technique for a particular process was within the capabilities of a person of ordinary skill, in view of the teaching of the technique for improvement in similar situations.

11. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. [U.S. 5,733,498] in view of Irmann [U.S. 2,796,660] and Ford Motor Company, Ltd. (Ford) [GB 1,470,949]. Kawakami et al., as modified by Irmann in the rejection of claim 17 above, disclose all elements substantially as clamed, but fail to disclose that a joint molded body is formed, via injection molding, for all vanes of the segment. Ford teaches that a complex molded body comprising multiple airfoils (12) and a supporting cover band (14) can be formed in one piece, via injection molding. It would have been obvious to a person having ordinary skill in the art at the time the

invention was made to further modify the method of Kawakami et al. to include the ability to form individual elements and join them before debinding and sintering, as taught by Ford, because the technique for a particular process was within the capabilities of a person of ordinary skill, in view of the teaching of the technique for improvement in similar situations.

12. Claims 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. [U.S. 5,733,498] in view of Irmann [U.S. 2,796,660] and Merrick et al. [U.S. 6,890,370]. Kawakami et al., as modified by Irmann in the rejection of claim 17 above, disclose all elements substantially as clamed, but fail to disclose that the metal powder is either titanium or nickel based. Merrick et al. teach a nickel-based alloy used in a powder metallurgical manufacture of a gas turbine engine component. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the method of Kawakami et al. to use a nickel-based alloy, as taught by Merrick et al., because the material was known in the art and could be implemented by one of ordinary skill with predictable results.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN J. YOUNGER whose telephone number is (571)270-3763. The examiner can normally be reached on M-F 7:30-5:00 EST, Alt. Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sean J. Younger/
Examiner, Art Unit 3745

/Edward K. Look/
Supervisory Patent Examiner, Art Unit 3745